PERMIT TO CONSTRUCT

COMPANY NAME: Eastern Municipal Water District
San Jacinto Valley Regional Water Reclamation Fac.

MAILING ADDRESS: P.O.BOX 8300
Perris, CA 92572-8300

EQUIPMENT LOCATION: 770 N Sanderson Ave
San Jacinto, CA
Facility ID#: 19159

Facility Type: Title V

EQUIPMENT DESCRIPTION

INTERNAL COMBUSTION ENGINE, CATERPILLAR, COMPRESSION IGNITION, MODEL NO. 3512C, DIESEL OIL NO. 2 FUELED, FOUR CYCLES, TWELVE CYLINDERS, TURBOCHARGED, 2000 BHP, DRIVING A 1500 KW EMERGENCY ELECTRICAL GENERATOR

BACKGROUND

Eastern Municipal Water District (EMWD) provides water distribution and sewage treatment in the area of Riverside County. It operates several desalination plants, water pumping stations and four sewage treatment plants in this area. The equipment in this application is located in the San Jacinto Valley Regional Water Reclamation Facility (SJVRWRF). This facility is a Title V facility and is considered an "essential public facility".

EMWD is proposing to install a new diesel fuel fired emergency IC engine that will drive a 1500 KW generator unit rated capacity of 2000 bhp.

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Table 1 lists permit processing fees and equipment information.

Table 1: PERMIT APPLICATION TRACKING INFORMATION

Application No. 503055	***Information***
Equipment Description	IC Engine, Emergency, 2000 BHP
Date Received	10/23/2009

Deemed Complete Date	11/23/2009
Application Type	10
Application Status	21
Previous Application No.	N/A
B-CAT No./ C-CAT No	043901/00
Fee Schedule	B
Fee Required	$ 2,051.52
Title V fees	$ 843.80
Total fees paid	$ 2,859.32

COMPLIANCE RECORD REVIEW

A review of the AQMD Compliance Database showed no Notice of Violation (NOV) and 1 Notice to Comply (NC) issued to Eastern Municipal Water District in the past two years (12/01/2007-12/17/2009). The notice to comply is in compliance status. A summary of the NOV and NC is provided in Attachment 1. The Eastern Municipal Water District is currently in compliance.

PROCESS DESCRIPTION

The ICE will drive an electrical generator at the facility. This 12-cylinder engine will operate on diesel fuel. The engine is turbocharged and aftercooled to improve engine performance Following is the information on the engine:

IC Engine: Caterpillar
Model: 3512C
Rating: 2000 BHP

EMISSIONS CALCULATION

The manufacturer's emissions data for the Caterpillar 3512C Engine is as follows:

Table 2: ENGINE EMISSION DATA

SOx	*ROG*	*NOx*	*CO*	*PM10*
0.0048(2) grams/bhp-hr	0.1(1) grams/bhp-hr	4.7 (1) grams/bhp-hr	2.6 (1) grams/bhp-hr	0.15(1) grams/bhp-hr

(1) Attached data sheet

(2) based on sulfur content of 15 ppm by weight with the standard specified by Rule 431.2(0.000015 lb-S/lb-diesel x 7.1 lb-diesel/gal x 2 lb-SO2/lb-S x 2542.5 Btu/hp-hr ÷ 137,000 Btu/gal ÷ 0.37 hp-out/hp-in x 453.6 g/lb = **0.0048 g/bhp-hr SOx (as SO2)**

NOx (lb/hr) = 4.70 g/hp-hr (2000 hp)(lb/453.6g)
= 20.72 lb/hr

Maximum Operating Time: 1 hour/day; 1 day/week, 30 days/month, 4.33 hours/month, 50 hrs/year.

The overall mass emissions are summarized below in Table 3. (See Attachment 2 for emissions calculations)

Table 3-Estimated Emissions for the 3512C Engine

	Units	*Estimated Emissions for 3512C Engine*				
		VOC	*NOX*	*SOX*	*CO*	*PM10*
Hourly	lb/hr	0.44	20.72	0.021	11.464	0.66
Max Daily	Lb/day	0	21	0	11.0	1
Average Daily (1)	Lbs/day	0	3.0	0	2	0
Annual(2)	Lb/yr	22.05	1,036.16	1.06	573.20	33.07

(1)Average daily emissions are based on 4.33 hours /month
(2)Annual emissions are based on 50 hours/year for testing and maintenance.

RULES EVALUATION

PART 1: SCAQMD REGULATIONS

Rule 212 Standards for Approving and Issuing Public Notice (Amended Nov 14, 1997)

212 (a) The applicant is required to show that the equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air

contaminants, is so designed, controlled, or equipped with such air pollution control equipment that it may be expected to operate without emitting air contaminants in violation of provisions of Division 26 of the State Health and Safety Code of these rules. The operation of this ICE is expected to comply with this requirement.

212(c)(1) Public notification is required if any new or modified permit unit, source under Regulation XX, or equipment under Regulation XXX may emit air contaminants located within 1000 feet from the outer boundary of a school. The source is not within 1000 feet of a school, public notification is therefore not required.

212(c)(2) Public notification is required if any new or modified facility has on-site increases exceeding any of the daily maximums specified in subdivision (g) of this rule. The increase in emissions does not exceed the threshold as specified, public notification is therefore not required.

212(c)(3) Public notification is required if the maximum individual cancer risk (MICR), based on Rule 1401, with T-BACT exceeds ten in a million (10 x 10-6). Even though, the ICE is exempt from Rule 1401 according to Rule 1401(g)(1)(F), a MICR analysis should still be performed to determine if a public notice is required. MCIR analysis was performed and based on Tier 3 Toxics Analysis, results show that the maximum incremental cancer risk (MICR) to the Maximum Exposed Individual Worker (MEIW) associated with the IC Engine is 6.24E-07 and to the Maximum Exposed Individual Resident (MEIR) was calculated to be 5.99E-07, which is below the Rule 1401 threshold limits of 1 in a million. Public notification is therefore not required (see Attachment 3 for Tier3 analysis).

212(g) This subdivision sets forth the process for federal public notification and distribution and specifies the daily maximum emissions increase as follows:

Air Contaminant	**Daily Maximum in lbs/day**
Volatile Organic Compounds	30
Nitrogen Oxides	40
PM10	30
Sulfur Dioxide	60
Carbon Monoxide	220
Lead	3

The increase in emissions does not exceed the daily maximum specified, public notification is therefore not required.

Rule 401 Visible Emissions (Amended Nov. 9, 2001)

Operation of the ICE is not expected to result in visible emissions. Therefore, compliance with this rule is expected.

Rule 402 Nuisance (Adopted May 7, 1976)

Operation of the ICE is not expected to result in a public nuisance. Therefore, compliance with this rule is expected.

Rule 404 Particulate Matter – Concentration (Amended February 7, 1986)

The exhaust flow rate for this engine is 3935 cfm at standard condition. The maximum concentration of particulate matter allowed according to Table 404(a) is 0.11222 grains per cubic feet.

Based on the manufacturer's emission factor data for PM, the PM emission rate for this engine is calculated below:

PM emission factor: 0.15 grams/bhp-hr
Exhaust flow rate: 3935 scfm

$$\frac{0.15\,\text{grams}}{bhp-hr} \times \frac{lb}{454 grams} \times 2000\ \text{hp} \frac{\text{min}}{3935\ dscf} \times \frac{\text{hr}}{60\ \text{min}} \times \frac{7000\ \text{grains}}{1\ \text{lb}} = 0.0195915$$

The calculated PM rate of 0.0195915 gr/cf is much less than the allowed rate of 0.11222 gr/cf. Compliance is expected.

Rule 407 Liquid and Gaseous Air Contaminants (Amended April 2, 1982)

The provisions of this rule do not apply to emissions from stationary internal combustion engines.

Rule 409 Combustion Contaminants (Amended August 7, 1981)

The provisions of this rule do not apply to emissions from internal combustion engines.

Rule 431.2 Sulfur Content of Liquid Fuels (Amended September 15, 2000)

According to Rule 431.2(e)(3), the facility shall not purchase any diesel fuel with the sulfur content greater than 15 ppm by weight as supplied by the supplier. Permit Condition prohibits the facility from purchasing diesel fuel with sulfur content greater than 15 ppm by weight. Therefore, compliance with this rule is expected.

Rule 1110.2 Emissions from Gaseous- and Liquid-Fueled Engines (Amended June 3, 2005)

According to Rule 1110.2(h)(2), the provisions of subdivision (d) of this rule do not apply to emergency standby engines, as approved by the Executive Officer, which operate less than 200 hours per year as determined by an elapsed operating time meter. Permit Condition limits the operation of this engine to less than 200 hours, therefore the provisions of subdivision (d) of this rule do not apply to this engine.

Reg XIII New Source Review (NSR)

Rule 1303: Requirements (Amended Dec. 6, 2002)

1303(a) Best Available Control Technology (BACT)

BACT means the most stringent emission limitation or control technique which: (1) has been achieved in practice; or (2) is contained in any State Implementation Plan approved by the US EPA; or (3) is any other emission limitation or control technique approved by the Executive Officer and cost effective as compared to measures listed in the Air Quality Management Plan.

Manufacturer's engine emissions data as listed in Table 2 on page 3 show that this engine will comply with the Tier 2 BACT standards for SOx, ROG, NOx, CO and PM_{10} as outlined in the BACT Guidelines for ICE, Stationary, Emergency, Compression Ignition [Table 1. Tier 2 - 7/13/2006] as shown in Table 4 below.

This engine is certified by EPA and CARB as Tier 2 nonroad engine(see attachment for certification)
Compliance with the requirements of BACT is expected.

Table 4: BACT LIMITS

Rating/Size	*NMHC + NOx*	*SOx*	*CO*	*PM*
HP>750	4.8(1) grams/bhp-hr	15 ppm(3) by weight Rule 431.2	2.6(1) grams/bhp-hr	0.15(2) grams/bhp-hr

(1) USEPA Tier 2 Certification levels required for compression ignition engines (after 7/7/2006) for engines HP>750

(2) Rule 1470 limit of 0.15 g/bhp-hr for new emergency diesel engines

(3) based on sulfur content of 15 ppm by weight with the standard specified by Rule 431.2 (0.000015 lb-S/lb-diesel x 7.1 lb-diesel/gal x 2 lb-SO2/lb-S x 2542.5 Btu/hp-hr ÷ 137,000 Btu/gal ÷ 0.37 hp-out/hp-in x 453.6 g/lb = **0.0048 g/bhp-hr SOx (as SO2)**

1303(b) This subdivision lists the following requirements for a Permit to Construct for any new or modified source which results in a net emission increase of any nonattainment air contaminant at a facility.

1303(b)(1) Modeling

According to Rule 1304(a)(4), this engine is exempt from the modeling requirement because the source is exclusively used as emergency standby equipment, and does not operate more than 200 hours per year as evidenced by an engine hour meter.

1303(b)(2) Emission Offsets

The IC Engine is exclusively used as emergency standby equipment, and does not operate less than 200 hours per year as evidenced by an engine hour meter, is exempt from offset under Rule 1304(a)(4). SOx, PM and ROG monthly emissions are 0 lb/day, no offset is needed. However, CO and NOx emissions are 2, 3 lbs/day respectively. It is exempt under Rule 1304(a)(4).

1303(b)(3) Sensitive Zone Requirements

Since Emission Reduction Credits were not required, this section does not apply.

1303(b)(4) Facility Compliance

The facility is expected to comply with all applicable rules and regulations of the District. For facility compliance see compliance record review in page 2 of this evaluation.

1303(b)(5) Major Polluting Facilities

A. Alternative Analysis
B. Statewide Compliance
C. Protection of Visibility
D. Compliance Through California Environmental Quality Act

This application is considered a major modification according to the definition in R1302(r), since the increase in NOx emissions is greater than 1 lb/day. This section does apply. Compliance must be demonstrated prior to the issuance of the Permit to Construct. A certified Statewide Compliance letter has been provided by the Eastern Municipal Water District. (see attachment 4). Compliance expected.

Reg XIV Toxics and Other Non-Criteria Pollutants

Rule 1401: New Source Review of Toxic Air Contaminants (Amended March 4, 2005)

According to Rule 1401(g)(1)(F), the requirements of subdivision (d) of this rule do not apply to emergency internal combustion engines that are exempted under Rule 1304. This ICE is exempted under Rule 1304; therefore, the provisions of this rule do not apply.

Rule 1470: Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines (Amended March 4, 2005)

This rule applies to any person who own or operates a stationary compression ignition engines in the SCAQMD with a rated brake horsepower greater than 50.

1470(c) Requirements

1470(c)(1) Fuel and Fuel Additive Requirements

1470(c)(1)(A) The IC engine will use CARB diesel fuel with a sulfur content of 15 ppm or less as imposed in Condition No. B61.6. Compliance is expected.

1470(c)(2) Operating Requirements and Emission Standards

1470(c)(2)(A) The IC engine are not located 500 feet or less from a school, this section does not apply.

1470(c)(2)(B) The IC engine can only operate under rotating outages, no more than 30 minutes prior to the outage forecast. It is not applicable for fire Emergency IC engines.

1470(c)(2)(C) Based on the manufacturer's data, this engine meets the PM limit of 0.15 g/bhp-hr and the EPA NMHC + NOx and CO standards for Tier II non-road diesel engines. Per Rule 1470 (f)(1)(B), the engine manufacturer test data may be used to meet the emission data requirements of paragraph (c)(2). Compliance is therefore expected.

The IC engine will not operate more than 50 hours per year for testing and maintenance as imposed in permit condition. Compliance is expected.

1470(c)(7) Demand Response Program
This section lists requirements for new emergency diesel-fueled engines used in Demand Response Program (DRP). DRP is a program for reducing electrical demand using an interruptible service contract (ISC). This engine will not be used in DRP-condition no.6 prohibits its use in DRP.

1470(d) Recordkeeping, Reporting and Monitoring Requirements

1470(d)(1) The facility submitted all the required information in this section.

1470(d)(4) The facility submitted the engine manufacturer emission data (see attachment 5) which shows compliance to subparagraph (c)(2)(C).

1470(d)(7) By permit condition a non-resettable totalizing timer shall be installed on the engine to indicate elapsed operating time. Compliance is expected.

1470(d)(9) By permit condition the operator of the engine will keep records according to this provision. Compliance is expected.

Reg XX Regional Clean Air Incentives Market (RECLAIM)

Rule 2005: New Source Review for RECLAIM May 6, 2005

EMWD's San Jacinto Valley Regional Water Reclamation facility is not a RECLAIM facility.

Reg XXX **Title V Permits**

3002(a): Requirements

Eastern Municipal Water District – San Jacinto Valley Regional Water Reclamation Facility (ID 19159) is a Title V facility and the addition of the IC Engine will be considered a significant revision to the existing Title V permit. As a significant revision, the permit is subject to a 30 day public notice and a 45 day EPA review and comment period.

3004(a)(4): Periodic Monitoring

Condition will be added for record keeping and reporting requirements.

PART 2: STATE REGULATIONS

CEQA California Environmental Quality Act

CEQA requires that the environmental impacts of proposed projects be evaluated and that feasible methods to reduce, avoid or eliminate identified significant adverse impacts of these projects be considered. The CEQA Applicability Form (400-CEQA) submitted by Eastern Municipal Water District indicates that the project does not have any impacts which trigger the preparation of a CEQA document; therefore a CEQA analysis is not required.

PART 3 FEDERAL REGULATIONS

40CFR Part 60 Subpart III New Source Performance Standard (NSPS) for Stationary Compression Ignition Internal Combustion Engines, June 28, 2006

This subpart applies to a new stationary diesel engine which is defined as one that is constructed or ordered after July 11, 2005 and manufactured after April 1, 2006. Since this engine has a manufactured date of April 19, 2006, this subpart applies to this engine.

For Engines before the 2007 model year, the owner/operator is required to purchase a certified nonroad engine to comply with the regulatory requirement Since this engine is an EPA certified Tier 2 engine, compliance is expected.

40CFR Part 63 Subpart ZZZ National Emission Standard for Hazardous Air Pollutants Reciprocating Internal Combustion Engines (RICE MACT), June 26, 2006

This subpart applies to RICE located at major sources of HAPs. This subpart delineates the requirements for stationary RICE, including compression ignition engines. Applicable engines are required to meet either emissions limitations, or meet other specified subparts.

Emergency IC engines are exempt from the requirements of this subpart, except for the initial notification requirements under §63.6445(d). Under this subsection, the owner or operator of an affected source that has an initial startup before the effective date of a standard shall notify the Administrator in writing that the source is subject to the relevant standard. Since the effective date for the RICE NESHAP has already passed, no notification is required. Compliance expected.

CONCLUSION AND RECOMMENDATION

This equipment is expected to comply with all applicable District Rules and Regulations. Therefore, a Permit to Construct and Operate is recommended subject to the following conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITIONS AT ALL TIMES.

3. THIS ENGINE SHALL NOT BE OPERATED MORE THAN 200 HOURS IN ANY ONE YEAR, WHICH INCLUDES NO MORE THAN 50 HOURS IN ANY ONE YEAR FOR MAINTENANCE AND TESTING.

4. AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE THE ENGINE ELAPSED OPERATING TIME.

5. THE OPERATION OF ENGINE BEYOND THE 50 HOURS PER YEAR ALLOTTED FOR ENGINE MAINTENANCE AND TESTING SHALL BE ALLOWED ONLY IN THE EVENT OF A LOSS OF GRID POWER OR UP TO 30 MINUTES PRIOR TO A ROTATING OUTAGE, PROVIDED THAT THE

ELECTRICAL GRID OPERATOR OR ELECTRIC UTILITY HAS ORDERED ROTATING OUTAGES IN THE CONTROL AREA WHERE THE ENGINE IS LOCATED OR HAS INDICATED THAT IT EXPECTS TO ISSUE SUCH AN ORDER AT A CERTAIN TIME, AND THE ENGINE IS LOCATED IN A UTILITY SERVICE BLOCK THAT IS SUBJECT TO THE ROTATING OUTAGE. ENGINE OPERATION SHALL BE TERMINATED IMMEDIATELY AFTER THE UTILITY DISTRIBUTION COMPANY ADVISES THAT A ROTATING OUTAGE IS NO LONGER IMMINENT OR IN EFFECT.

6. THIS ENGINE SHALL NOT BE USED AS PART OF A DEMAND RESPONSE PROGRAM USING INTERRUPTIBLE SERVICE CONTRACT IN WHICH A FACILITY RECEIVES A PAYMENT OR REDUCED RATES IN RETURN FOR REDUCING ITS ELECTRIC LOAD ON THE GRID WHEN REQUESTED TO DO SO BY THE UTILITY OR THE GRID OPERATOR.

7. ON OR BEFORE JANUARY 15TH OF EACH YEAR THE OPERATOR SHALL RECORD IN THE ENGINE OPERATING LOG:

    a. THE TOTAL HOURS OF ENGINE OPERATION FOR THE PREVIOUS CALENDAR YEAR, AND

    b. THE TOTAL HOURS OF ENGINE OPERATION FOR MAINTENANCE AND TESTING FOR THE PREVIOUS CALENDAR YEAR.

    ENGINE OPERATION LOG(S) SHALL BE RETAINED ON SITE FOR A MINIMUM OF FIVE CALENDAR YEARS AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER OR REPRESENTATIVE UPON REQUEST.

8. THE OPERATOR SHALL KEEP A LOG OF ENGINE OPERATIONS DOCUMENTING THE TOTAL TIME THE ENGINE IS OPERATED EACH MONTH AND THE SPECIFIC REASON FOR OPERATION AS:

a. EMERGENCY USE
b. MAINTENANCE AND TESTING
c. OTHER (BE SPECIFIC).

IN ADDITION, FOR EACH TIME THE ENGINE IS MANUALLY STARTED, THE LOG SHALL INCLUDE THE DATE OF ENGINE OPERATION, THE SPECIFIC REASON FOR OPERATION, AND THE TOTALIZING HOUR METER READING (IN HOURS AND TENTHS OF HOURS) AT THE BEGINNING AND THE END OF THE OPERATION.

9. THE OPERATOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF RULES 431.2 AND 1470.